

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-44 are presently active in this case. The present Amendment amends Claims 1-44 without introducing any new matter.

The outstanding Office Action rejected Claims 1, 15-16, 27, 32-33 and 35 under 35 U.S.C. §112, second paragraph, as indefinite. Claims 1-44 were rejected under the judicially created doctrine of obviousness-type double patenting as unpatentable over Claims 1-19 of copending Application No. 10/734,248. Claims 1-44 were rejected under 35 U.S.C. §102(e) as anticipated by Yoon (U.S. Patent Publication No. 2002/0168577) or Hwang (U.S. Patent Publication No. 2004/0076894).

Initially, Applicants respectfully request that the reference AO cited in the Information Disclosure Statement filed October 27, 2003 be acknowledged as having been considered in the next Office Action.

First, Applicants wish to thank Examiner Rosasco for the courtesy of an interview granted to Applicants' representative on December 14, 2005, at which time the outstanding issues in this case were discussed. Arguments similar to the ones developed hereinafter were presented and the Examiner indicated that he would reconsider the outstanding grounds for rejection upon formal submission of a response.

To clarify Applicants' invention and in response to the rejection under 35 U.S.C. §112, second paragraph, independent Claim 1 is amended to clarify the expression "inverse peak pattern" by reciting "a mask including at least one basic unit" and "including an outgoing light intensity distribution with a light intensity being minimum substantially at a center of the at least one basic unit and an increasing light intensity towards a periphery of the at least one basic unit," thereby correcting the noted informalities. These changes find

non-limiting support in Applicants' disclosure as originally filed, for example in Figures 2-3 and at page 13, lines 6-9 and from page 15, line 24, to page 16, line 5. Independent Claims 2, 6, 9, 12, 15-16, 21 and 27-39 are amended to recite features analogous to the amended features of independent Claim 1. All the dependent claims are amended to be in accordance with the changes to the independent claims. In view of amended Claims 1-44, it is believed that all pending claims are definite and no further rejection on that basis is anticipated. If, however, the Examiner disagrees, the Examiner is invited to telephone the undersigned who will be happy to work with the Examiner in a joint effort to derive mutually acceptable language.

To better comply with U.S. claim drafting practice and to correct minor formalities, Claims 1-44 are amended. The amendments are only formal in nature and are therefore not believed to raise a question of new matter.

In response to the provisional rejection of Claims 1-44 under the judicially created obviousness-type double patenting in view of the co-pending patent application 10/734,248, Applicants file a Terminal Disclaimer against the patent application 10/734,248.

In response to the rejections of Claims 1-44 under 35 U.S.C. §102(e), Applicants respectfully request reconsideration of these rejections and traverse the rejections, as discussed next.

Briefly recapitulating, amended Claim 1 relates to a crystallization apparatus, including a mask with at least one basic unit; and an illumination system configured to illuminate the mask with a light beam so as to produce an outgoing light beam emerging from the mask. The outgoing light beam includes an outgoing light intensity distribution with a light intensity being minimum substantially at a center of the at least one basic unit and an increasing light intensity towards a periphery of the at least one basic unit when transmitted through the mask, and is configured to irradiate a polycrystalline semiconductor film or an

amorphous semiconductor film, thereby generating a crystallized semiconductor film. The mask further includes a light absorption layer having light absorption characteristics so as to produce said outgoing light intensity distribution.

As explained in Applicants' specification at page 5, lines 17-23 with corresponding Figure 1, Claim 1 improves upon conventional crystallization apparatuses, because crystal nuclei can be generated at desired positions, and can realize sufficient lateral growth from the crystal nuclei, thereby generating a crystallized semiconductor film with a large particle size.

Applicants respectfully submit that both applied references, Yoon and Hwang, fail to teach or suggest an outgoing light beam of the mask, with an outgoing light intensity distribution with a light intensity being minimum substantially at a center of the at least one basic unit and an increasing light intensity towards a periphery of the at least one basic unit, as recited in independent Claim 1.

The reference Yoon discloses a mask for to perform sequential lateral solidification (SLS) crystallization.¹ Yoon further teaches that the mask includes a light absorptive portion that blocks a laser beam, and that a plurality of tier-shaped light transmitting portions pass a laser beam.² However, Yoon fails to teach or suggest the mask, wherein the outgoing light beam includes an outgoing light intensity distribution with a light intensity being minimum substantially at a center of the at least one basic unit and an increasing light intensity towards a periphery of the at least one basic unit.

The reference Hwang discloses a method for crystallizing amorphous silicon, by applying a laser beam onto the amorphous silicon through a mask.³ As can be seen in Figure 8, Hwang describes that a laser is passed through the mask, thereby generating peaks which are spaced from each other, in correspondence with slits in the mask.⁴ Hwang therefore

¹ See Yoon in the Abstract.

² See Yoon in the Abstract, and at page 4, paragraph 57, and in Figure 6.

³ See Hwang in the Abstract.

⁴ See Hwang from page 3-4, at paragraph 63 and in Figure 8.

teaches the opposite of Applicants' Claim 1, and thereby fails to disclose the mask with an outgoing light beam including an outgoing light intensity distribution with a light intensity being minimum substantially at a center of the at least one basic unit and an increasing light intensity towards a periphery of the at least one basic unit.

Therefore, the applied references fail to teach or suggest every feature recited in Applicants' claims, so that independent Claim 1 is patentably distinct over Yoon and Hwang. Accordingly, Applicants respectfully traverse, and request reconsideration of, the rejections based on Yoon and Hwang.⁵

Independent Claims 2, 6, 9, 12, 15-16, 21 and 27-39, recite limitations regarding the light beam or light ray analogous to the limitations recited in independent Claim 1. Moreover, Claims 2, 6, 9, 12, 15-16, 21 and 27-39 have been amended in a manner analogous to the amendment to Claim 1. Accordingly, for the reasons stated above for the patentability of Claim 1, Applicant respectfully submits that the rejections of Claims 2, 6, 9, 12, 15-16, 21 and 27-39 are also believed to be overcome in view of the arguments regarding independent Claim 1.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-44 is earnestly solicited.

⁵ See MPEP 2131: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," (Citations omitted) (emphasis added). See also MPEP 2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art."

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below listed telephone number.

Respectfully submitted,

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